NOVEMBER
1968
45¢

Live Steam®

THE MONTHLY MAGAZINE FOR ALL LIVE STEAMERS AND LARGE-SCALE MODEL RAILROADERS

Steam on the C & LC

Iowa and Golden Gate Steam Meets

Live Steam
magazine

NOVEMBER 1968 VOL. 2 NO. 11

CONTENTS

2 *Live Steamers keep up Steam on the C & LC*

5 *building the RARITAN*

6 *IMSE inaugurate New Track in Iowa*

8 *Live Steam News*

Scheduled Meets

9 *So You Want To Build A Live Steam Locomotive*

11 *mail stop*

12 *Photo report on the GGLS Fall Meet — 1968*

14 *. . . from the cupola*

COVER PHOTO

1968 double-header steam on the Cadillac & Lake City Railroad climaxes a summer of full-size steam for several Live Steamers. Photo by Wm. C. Fitt

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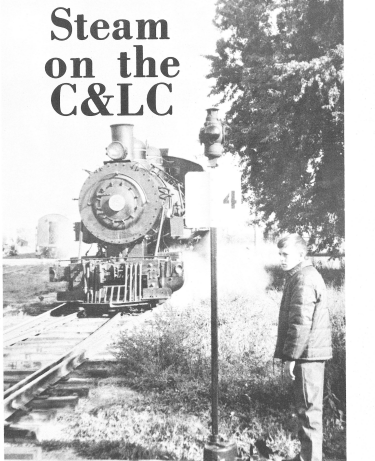
Live Steamers keep up

Steam on the C&LC



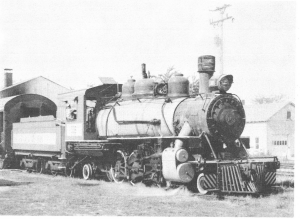
PHOTOS BY WILLIAM C. FITT UNLESS OTHERWISE CREDITED

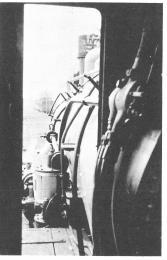
Lining the switch for the Two-Spot is part of a day's experience for Paul Fitt as he spends summer weekends with full-size steam. (Above)

Hostler Joe Rogers brings the train to the loading area in preparation for the day's run. Bob Butterfield (remember the Lionel catalogs of the 1930's?) never experienced a greater thrill at the throttle of the 20th Century Limited than Paul Fitt does as he rides the fireman's seat on the 18 on the Labor Day double-header run with the Two-Spot. (Across page, top)

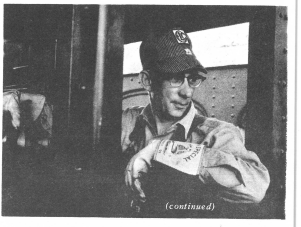
While the view from the fireman's seat was an occasional treat for the fireman during the run, Doris Fitt of the LIVE STEAM staff takes to the coaches for a trip behind the #18 as conductor, Stan Bogan, prepares to call the final "All Aboard." In the cab Bill Fitt feeds hardwood edgings to the Eighteen as the woodburner begins another summer run. (Center row)

Fred Steck and his wife, Ruth, record the Eighteen's operations as they watch the fruits of several year's labor in restoring the 1921 Baldwin 2–6–2. George Archison watches for the high ball to begin a trip as engineer on the C & LC. (lower)





DORIS PITT



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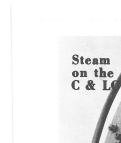


Any time a couple of Live Steamers get together, there is bound to be talk of steam as it was "in the good ole days," but seldom, if ever, do they get a chance to relive the past as did Live Steamers George Atchison and William Fitt this past summer.

For George the experience of the summer was a culmination of four years of week-end firing on the Cadillac & Lake City's oil-burning 2–8–2. For Bill it was the startling acceptance of an "if-you-ever-need-a-hand-" offer made to C & LC President Howard Noble! For both, it was a "Time Machine" trip into the past, shared by Bill's 13-year old son, Paul, who rode most of the trips. Twelve wonderful week-ends and over 650 miles of full-size steam . . . 494 of them on a wood-burning Baldwin 2–6–2!

Six trips on the C & LC's 0–4–0T #11 provided Bill with a refresher course in locomotive operation. Moving forward with a couple of coaches tied to her tail, the little engine wasn't at all hard to get along with. Without tuming facilities at North Cadillac, half of each round trip operated with the engine backing with the coaches coupled to the front end. With the rear drivers only a few inches behind the center point of the whole unit, every inch of dip and kink in the rails was magnified into (seemingly) an equal number of feet of up-and-down and side-to-side motion of the cab! The 36" drivers resulted in a wonderful ratio of steam sounds per mile which caused Dick Jensen (who rode along on one of the trips) to compare it to his ex-GTW 4–6–2 5602. He couldn't relate the sound to the 15 to 20 mph speed... when his 5629 sounded "like that," she would be hitting 40 or 50 miles per hour!

As though this experience might not be enough for any Live Steamer, June 1st was the big day. It was the first trip of Fred Steck's newly-restored #18 . . . the day that all had been waiting for. Carlton Johnson, C & LC's regular engineer, returned for the week-end from his duties with Two-Spot on movie location in Chicago to be engineer on that first run. Jim DeWitt, ex-GTW fireman and week-day fireman on the C & LC, was the official fireman for the trip. George and Bill were listed as "student firemen" with Fred Steck and Paul Fitt on the tender to keep the wood supply up front. With a crew of that size no one gained much in the way of experience on that first trip but it was a day for all to remember. About every firing theory conceivable was tried . . . stacking the four-foot slab wood on the cab deck between firing sessions; passing the slabs from tender to fireman to eliminate walking back and forth; stuffing the firebox full; firing lean; at the front; at the back; at the sides – all of which produced steam enough to make the run from Lake City to Cadillac and return.

After a couple more runs, the activity settled down to a more or less routine affair and there was time (and room in the cab) for George and Bill to really see what made the old girl perform best. It soon became obvious that just about nothing would produce enough steam to permit a complete run from Lake City to the Cadillac without a stop at Round Lake (where the rails start a climb of over 100 feet in three miles) to build up a head of steam. The fill was originally built for the Florida & Georgia Railroad and probably worked well on frankly-cut, pitch-laden Georgia Pine but the fuel on the C & LC was a readily-available supply of hardwood edgings that had been standing in the weather for many years at a local pallet shop. It burned like paper and even with a full head of steam at Lake City, it was nigh impossible to keep the steam gauge from dropping steadily until, at the bottom of the hill at Round Lake there would be 105 or 110# left, enough to pull the three-car train up the hill to the North Cadillac station.

As the summer traffic increased and the schedule called for two and (later) three trips each Saturday, there was more chance to become acquainted with the engine.

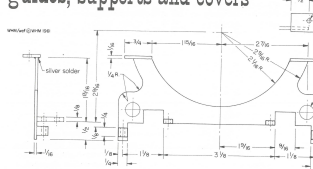
Saturday, July 13th, dawned clear and bright and when Bill and Paul arrived at the Lake City engine house about 9:30 a.m., George was busy going over the #18 as was the usual custom. There was the leisurely run down to the water plug to top off the tank and then back to couple onto the three coaches for the 10:30 run. The early trip was quite routine with the usual stop at Round Lake to build up pressure. As the sun climbed higher in the sky, however, the temperature followed the same pattern and when the high ball was given for the 12:45 p.m. trip the mercury was well over 90! The safety valves were set to pop at 162# but if you reached that point you lost 12# of steam before they shut off. The Eighteen was just ready to pop when George pulled the throttle and started off on the second trip of the day. As the miles rolled by, the Live Steamer crew was pleasantly surprised to find that the pressure was holding fairly well and that Round Lake the needle was right on 145#... the first time that had ever happened! A quick conference between George and Bill established that there would be enough steam to make the hill and they would go right through. A good glass of water was visible in the backhead but, as was the usual custom, the injector was opened on one of the short leveling-off stretches. No luck! Several attempts were made to get the injector to operate – water from the drinking jug was used to try to cool it and get it operating – but with no effect. George, then, began to try the second injector on the engineer's side of the cab with the same lack of success and finally, just as the middle of the hill the train was stopped while all efforts were concentrated on getting an injector to operate!

The concerted efforts were successful in starting the injector and, after recouping the 12# of steam lost through the safety valves the trip was continued to the top of the hill and North Cadillac. The first "through" run had been foiled, though, by a tricky injector!

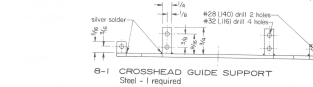
The following week the Eighteen was kept in the engine house at Lake City and after many conferences and discussions, steel plates were installed in the firebox to cut down the amount of air coming in the grates. The "operation" was a success. The last regular runs with the Eighteen were made on July 27th and the three trips were made with no stop at Round Lake to build up steam and with no problems for the part-time fireman who found that no relief was available for the third trip.

The Two-Spot returned from its movie assignment under its own power on August 2nd and from over regular assignment on the C & LC varnish. Day by day, though, the thought of new steam locomotives available at Lake City began to gnaw at all those connected with the operation until the temptation became too great to ignore. On Labor Day the inevitable happened . . . the Eighteen and the Two-Spot were double-headed to signal the end of another summer season of steam on the C & LC!

guides, supports and covers



8-1 CROSSHEAD GUIDE SUPPORT
Steel - 1 required



8-2 CROSSHEAD SLIDE
Brass - 2 required

8-3 UPPER CROSSHEAD GUIDE
Cold Rolled Steel - 2 required

8-5 STEAM CHEST PLATE
Steel - 2 required

8-4 LOWER CROSSHEAD GUIDE
Cold Rolled Steel - 2 required

8-7 PISTON ROD GLAND NUT
Brass - 2 required

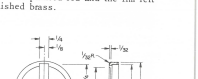
8-10 STEAM CHEST COVER NUT
Brass - 2 required

8-11 STEAM CHEST PLUG
Brass - 2 required

8-6 STEAM CHEST COVER
Brass - 2 required

8-13 ACORN NUT
Brass - 2 reqd.

8-12 CYLINDER COVER
Brass - 2 required



8-9 FRONT CYLINDER HEAD COVER
Brass - 2 required

8-8 REAR CYLINDER HEAD COVER
Brass - 2 required

building the RARITAN

by William H. Morewood

Inasmuch as the Crosshead Guide Support (8–1) will be bolted against the top of the frame, the two ¼" square crosshead buide supportblocks should be located as accurately as possible relative to the 1/8 x 1/4 bars that hold this part to the frame.

In the Steam Chest Plate (8–5) the threaded bushing silver soldered into the plate pemits cylinder oil to be pumped into the steam chest.

The top of the Steam Chest Cover (8–6) is shown recessed to simplify painting – the recessed part was painted red and the rim was left polished brass. A 1/32" thick brass sheet with the edges bent down and silver soldered at the corners would be as appropriate and is easier to make. This could be polished and left unpainted.

Generally, the same would apply to the Cylinder Head Covers (8–8) and (8–9), as here again the recessed part was painted red and the rim left polished brass.

Iowa Model Steam Engineers inaugurate their

New Track in Iowa

by Lloyd G. Shuster, President
Iowa Model Steam Engineers

Photos by Hubert E. Brakke

Steve Elliott's Tom Thumb is a good running engine. Steel tires shrunk on drivers stopped his running but caused no damage.

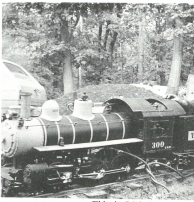
The new track of the Iowa Model Steam Engineers was put into operation on September 28th and 29th and was well attended by Live Steamers from Iowa, Illinois, Wisconsin and Minnesota. The club's facilities are now located on property owned by Mr. Pershing G. Scott near Marion, Iowa, and is set in a beautiful grove of hardwoods which provide a cover from the elements. It was an engineering feat in itself to locate the route and not wind up dead-ended against a tree. (One tree had to be notched slightly in order that one member who uses stirrups on his car could get his big feet by.)

The 7½" gauge track is 900 feet long and includes one 60-foot stretch of 4% grade and is built at ground level.

The elevated track accommodates 3½" and 4¾" gauge equipment and extends for 525 feet with an additional 64 feet of track in the steaming bays. The maximum grade for this track is 2% and the minimum radius curve is 58' 9". There is an unique transfer table equipped with a steel plate which, when the table is locked tight against the main line, can be slid sideways over the rail. The engine being handled is run up on the plate (or off if going onto the track) and the plate run back over the transfer table after which the engine can be transferred to the steaming bays. Track wiring controls a distant signal showing when the transfer table is in

New steaming bay will accommodate 12 ¾" and 1" engines or so with plenty of room to work between tracks.

1½" steaming track leads to gate where equipment can be unloaded directly to track without direct lifting.



This is Dick Winkle with his 1½" Mogul. Dick is President of the Southern Minnesota Live Steamers in Rochester.

A life-time railroader, Al Frese turned Live Steamer when he recently acquired this 1½" Mogul.

use and blocking the main. Steaming bays are provided with water and 110V single phase AC.

The elevated track uses ¼ x ½ OHS rail with over 3000 ties fastened to redwood stringers. A total of 105 three-inch pipe posts were driven three feet into the ground for support, except that the pipe was set in concrete at the transfer table. Work was begun on June 22nd and completed on September 21st, 1968 . . . requiring just three months for construction. Larry Edwards of Green Bay, Wisconsin, had been selected to engineer the project and deserves much credit for this superb job.

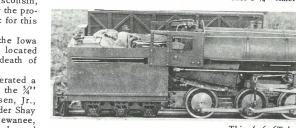
The new track replaces the Iowa Club's facilities which were located in LaPorte City until the death of Cliff Witt in 1966.

IMSE members present operated a variety of motive power. In the ¾" and 1" scales, Ron Christensen, Jr., of Des Moines had a 2-cylinder Shay and a Mogul; Dick Lippen of Kewanee, Ill., had an 0-6-0; 4-4-0's belonged to Fred Bonacker of Green Bay and Dan Denzin of Ripon, Wis.; Larry Edwards' 4-4-2 from Green Bay; a 4-6-2 by Hue Brakke of St. Paul; a couple of Hudsons by Ron Christensen, Sr., of Des Moines and Ed Kolasinski of Menasha, Wis., and a 4-6-6T built by Lester Glass of Sac City, Iowa.

1½" engines included Steve Elliott's *Tom Thumb* from Rockford, Ill; Clint Elliott's 0-4-0 switcher from Waterloo, Iowa; a couple of Moguls by Al Frese of Rockford, Ill., and Dick Winkle of Rochester, Minn., and Ray "Pappy" Whitaker's 4-6-4 from Cedar Point, Ill.

It's good to have club facilities in operation again and perhaps these will bring increased interest to the hobby in Iowa.

"As good a runner as she is a looker" is Hue Brakke's description of Fred Bonacher's ¾" American.



This 4-6-6T by Lester Glass has been around for some time and, like cheese, seems to improve with age.

Ray Whitaker quickly steamed up his Hudson to try the 4% grade. No effort at all for this steamin' demon.

Live Steam

news

TRACKWORK UNDER WAY IN HOUSTON

Track crews of the Gulf Coast Chapter – NRHS in Houston have been busy building trestle work for their new 3½ and 4¾" track after studying suggestions sent in from five Live Steam clubs around the country. A total of 88 feet of trestle have been completed and 35 feet of three rail track have been layed... but further construction will have to wait for receipt of additional supplies.

In addition to the Missouri Pacific coach #1141 which was received by the club last spring they now have KCS observation-cafe car *Good Cheer* which has been repainted outside and refinished inside in preparation for a December 1st trip from Houston to Fort Worth and return on the back end of the *Texas Chief*. To round out the club's acquisition of passenger equipment, Santa Fe RPO #3401 is expected momentarily.

Live Steamer Paul DeVerter is the President of the club and further information can be obtained by contacting the Gulf Coast Chapter – NRHS, Inc., P. O. Box 9015, Houston, Texas 77011.

ATTENTION INDIANA LIVE STEAMERS

The Indiana Museum of Transport & Communication, Inc., is interested in building a 1" and 1½" scale Live Steam layout on their 10-acre site in Forest Park, Noblesville, Indiana.

Anyone interested is asked to write to Howard R. Blackburn, M.D., c/o Indiana Museum of Transport & Communication, Inc., Post Office Box 83, Noblesville, Indiana 46060 and a meeting will then be arranged at the site in the near future.

SITE WORK STARTED BY LONG ISLAND LIVE STEAMERS

It's been less than two years since a group of Live Steamers met on Long Island and organized a Live Steam Club, but they have worked hard and now their efforts are beginning to bear fruit.

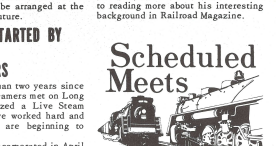
The club was incorporated in April 1968 and now lists 12 regular members in addition to 15 associate members. They have been spending Sunday mornings at their 7-acre club site armed with axes, saws and other paraphernalia to chop down trees to clear a path for the right-of-way. Plans call, first, for a ground-level track and later a high-level track for smaller gauges.

New members are invited and should contact W. E. Wilson, 118 Magnolia Street, Westbury, New York 11590, for further information.

JACK FESCO STORY IN RAILROAD MAGAZINE

The life story of Jack Fesco, Live Steamer and long-time railroader will appear in the January issue of Railroad Magazine which will be on sale about December 9th.

Highlights of Jack's 43-year career with the Southern Pacific Railroad and of his Live Steam activities appeared in LIVE STEAM in November 1966, and we will all look forward to reading more about his interesting background in Railroad Magazine.



JANUARY

1 **FLORIDA LIVE STEAMERS**
New Year's Day Run
4½" – 3½" gauges
Enos W. Yoder's track
1527 Ingrahm Avenue
Sarasota, Florida 33580

1 **TORONTO LIVE STEAMERS**
New Year's Day Run
3½" – 4¾" gauges
George Hill's track
2551 Old Carriage Road
Mississauga, Ontario, Canada

REGULAR RUN DAYS

GOLDEN GATE LIVE STEAMERS
Every Sunday, weather permitting
2½" – 3½" – 4¾" – 7½"
Don Downer, Secretary
1274 36th Avenue
San Francisco, Calif. 94122

JAMUL VALLEY RAILROAD
2nd Sunday of each month
7½" gauge
Harry F. Haas
Route 1, Box 47 A
Jamul, California 92035

LOS ANGELES LIVE STEAMERS
1st Saturday & Sunday each month
3½" – 4¾" – 7½"
William Harper, Secy.
4 Rawhide Lane
Rolling Hills Estates, Calif. 90274

RIVERSIDE LIVE STEAMERS
4th Saturday & Sunday each month
7½" gauge
Francis H. Smith, Secretary
P. O. Box 5512
Riverside, Calif. 92507

SOUTHERN CALIFORNIA LIVE STEAM CLUB
3rd Sunday each month
3½" – 4¾" – 7½"
K. G. Kepner, Secretary
2764 Maple
Rialto, California 92376

To Chicago Area Live Steamers:

The WINTER WORKSHOP MEETS during the past seven consecutive years were intended to be an annual event. However, during the winter and spring of 1968 I was hunting desperately for property for our Northern Illinois Live Steamers and during March and April I was hot on the trail.

Preparing for the WINTER WORKSHOP MEET takes about a week of my spare time and in 1968 there just wasn't any! I sincerely hope to resume the ritual again in 1969 because they were a lot of fun and seemed to be enjoyed by all.

So that no one who attended the previous WINTER WORKSHOP MEETS would think that he had been left out this year, we wanted to make this explanation. The Northern Illinois Live Steamers are going ahead full blast on their 7½ acre site and expect to be able to run all three gauges next spring.

Here's to clear track ahead!

Cordially,

Matt Fairlie

Matt Fairlie
President, NILS

PART TWO

VALVE GEAR

SO YOU WANT TO BUILD A LIVE STEAM LOCOMOTIVE

by Joseph F. Nelson

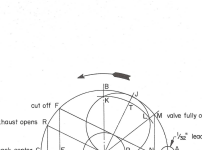
CHAPTER 10

VALVE LAYOUT PROCEDURE

(Reference: August 1967, LIVE STEAM, "Valve Design")

1. Lay out a circle, a scaled-up multiple of the valve stroke.
2. Use A–C as 100% valve stroke, scale off 85% (full gear).
3. From 85% (E), erect perpendicular E–F.
4. At A, describe a circle with scaled-up radius of lead (try 1/32" actual lead).
5. From (F), draw a line tangent to lead circle at A, (F–G).
6. From center O, describe a circle tangent to line F–G, measure radius O–H. This will be the required "lap." The circle will be the lap circle.
7. Draw line O–J perpendicular to line F–G, on it describe a circle half the diameter of the valve travel circle.
8. Draw line R–S parallel to F–G through center of lap circle O. This is the exhaust line and since it passes through travel circle at O, an exhaust with neither plus or minus lap is delineated. Therefore, the exhaust will remain open for 180° regardless of whether the reverse lever is hooked up or is in the corner. What happens is that as the reverse lever is hooked up, the complete exhaust event occurs earlier. This gives a longer compression period.
9. From H, measure off H–T, equal to port opening, then describe arc LKT. If this arc comes within travel circle A–B–C–D, the port will be wide open at crank position O–L–M and will remain fully open until it reaches position O–K. If the arc falls outside the travel circle A–B–C–D, full port opening will not be realized.

The description of events as given do not take into consideration the opposite end of the stroke. This was done for clarity since another Zeuner Diagram superimposed upon the already complicated diagram would only confuse the issue. In addition, all three Zeuner Diagrams are based upon piston stroke and not on crank position. However, crank position can be approximated on the Travel Circle. Where space permits, the Zeuner Diagram delineates a scaled-down Crank Circle somewhat larger than the Travel Circle. This includes a connecting rod layout drawn to the same scale as the Crank Circle. The effect of connecting rod angularity is clearly shown. When a Stephenson Valve Gear is completely plotted, everything is shown, including the arc of connecting rod swing as it relates to piston postion, and also the variable lead that is so characteristic of the Stephenson Valve Gear.



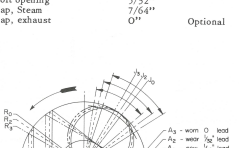
VALVE DIAGRAM – TYPICAL PROTOTYPE

With certain dimensions known, other dimensions can be plotted through the use of the Zeuner Diagram. Note that below the diagram there is a scale. On this scale each vertical division equals 1/16" of valve travel. With this scale, any event that is shown on the Travel Circle can be brought down to horizontal centerline A–C which can then be scaled off as a percentage of the piston stroke. Any dimensions given here will be for 1" scale, other scales proportional. Also, dimensions are basic and may be varied to suit conditions that may show up in castings that may be purchased from Live Steam suppliers.

Valve Travel Circle	A–B–C–D	9/16" travel	Scaled down from 6-3/4" Prototype
Cut-off	E	85%	Optional
Lead	A	1/32"	Optional
Port Opening	H–T	5/32"	Valve travel is 3½ times
Lap, steam	O–H	3/32"	From layout
Lap, exhaust	R–O–S	+1/32" to −1/32"	Optional

To compensate for wear, start with:

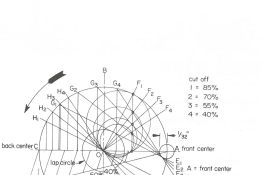
Cut-off	75%	Optional
Lead	1/16"	Can cause hard starting
Port opening	5/32"	
Lap, Steam	7/64"	
Lap, exhaust	0"	Optional



ZEUNER VALVE DIAGRAM
SHOWING EFFECTS OF WEAR

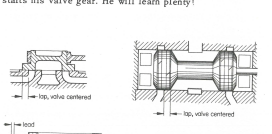
As previously mentioned, wear does take place, and, as it does, the events come later and later, until the engine starts to perform in a sluggish manner. Then it's time for an overhaul. This writer does believe in compensating for wear so as to permit a somewhat longer life between valve gear overhauls. It must be realized that care must be exercised when fitting valve gear parts since excessive play, like wear, does accumulate, and is usually multiplied by the number of joints in the valve train. It is only fair at this time to state that some Live Steam engine builders do not believe in lead and they will defend their ideas in no uncertain terms.

A reasonably accurate Zeuner Diagram showing the effects of hook-up can be laid out for a radial valve gear. Since this layout doesn't delineate the rest of the valve gear, it will only show the effect on the piston stroke and not on the crank circle. To get an accurate diagram of the Stephenson Valve Gear events, it will be necessary to lay out the complete valve gear including



ZEUNER VALVE DIAGRAM SHOWING EFFECTS
OF "HOOK-UP" ON VALVE EVENTS
(Radial Valve Gear)

crank circle and eccentrics. This will illustrate the variable lead that is so characteristic of the Stephenson Valve Gear. However, it is hardly possible that the Live Steam engine builder will go to such lengths. It is recommended that the builder make a mock-up of his proposed valve gear (about 3 times scale) before he starts his valve gear. He will learn plenty!



SLIDE VALVE PISTON VALVE

mail stop

COMBUSTION CHAMBERS ARE VALUABLE

As an instrumentation engineer, the field of locomotive design engineering is somewhat foreign to my field of endeavor but my interest has lead to considerable study of available literature on the subject (scarce).

I've built two boilers and helped build a third so I don't have the knowledge of some who claim a dozen or more. I do believe that the experience of others can be used to advantage although I don't always swallow everything that is offered. No one man or group has ever pinned down the details of boiler design or interaction of all the factors involved and pure theory not backed by practical tests is nothing but conjecture.

Based on my engineering background and technical discussions with fellow workers who are combustion experts (gas, liquid and slurry fuels) I offer the following comments on boiler design particularly with respect to Mr. Holland's comments on combustion chambers. (LIVE STEAM, Jan. 1968)

Combustion or burning of any fuel requires time. The air passing through coal or mixed with an oil spray carries with it both burnable gases and solid matter. Adequate *time* must be provided if the bumable material is to be completely consumed. Where the gas flow path from fire bed to flue sheet is many feet in length, this time is available but on small locomotive boilers this distance is measured in inches and with no arch or combustion chamber it can be even fractions of an inch. If it isn't heated, it goes to waste up the stack and efficiency goes with it!

During combustion heat energy is transferred to the firebox walls in two ways: conduction and radiation. Combustion, in most cases, stops at the back flue sheet due to a change in gas velocity and the flues, therefore, transfer heat energy by conduction only. If combustable material enters the flue tubes it goes to waste up the stack. The firebox area per square inch is generally rated as transfering five times more heat energy to the water than is the flue tube area – just because of the radiant heat energy available only in the firebox area.

A combustion chamber, therefore, (1) provides more efficient burning of the available fuel by permitting combustion to continue; (2) provides more area subject to radiant heating and (3) permits shortening of the flue tubes. The latter results in use of a greater number of smaller diameter tubes, thereby increasing the gas flow area with possible reduction of cylinder back pressure since the smokebox vacuum need not be so great.

Mr. Holland has deleted the combustion chamber and lengthened his flue tubes, thereby gaining 150 sq. in. of actual heating surface (in the flue tube area). However, he has lost 130 sq. in. of heating surface which is five times more effective than the heating surface which he has gained. His statement that the heat energy in the combustion chamber would have to be twice that entering the flue tubes completely neglects the *effectiveness* of the two types of heating surfaces involved.

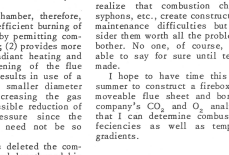
Although his boiler may easily supply all the steam required by his cylinders under any condition of running, he has actually lost heat transfer capability or steaming capability and is going to burn more fuel per horsepower-mile.

The same sort of reasoning has convinced me of the value of syphons and struts, backed up again by use or absorption of radiant energy. So what if there is violent circulation – move the safety valves forward and baffle the dry pipe.

Of course many other factors contribute to overall boiler efficiency and I am further convinced of the value of copper fireboxes and flue tubes, firebox arches and radiant superheaters.

I am building a very heavy freelance Pacific on which the boiler will be coursed and incorporate all of what I think are desirable features. I realize that combustion chambers, syphons, etc., create construction and maintenance difficulties but I consider them worth all the problems and bother. No one, of course, will be able to say for sure until tests are made.

I hope to have time this coming summer to construct a firebox with a moveable flue sheet and borrow my company's CO_2 and O_2 analyzer so that I can determine combustion efficeiencies as well as temperature gradients.

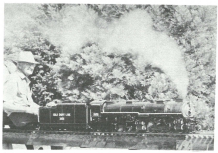


By moving the flue sheet, I can determine the completeness of combustion at any length of combustion chamber. I can also remove the arch and by weighing the coal, recording inlet and exit water temperatures plus volume, determine heat energy transfer per pound of coal.

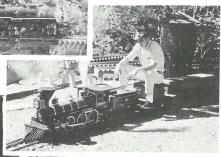
GAROLD B. KUBICEK
7985 BELLAIRE AVE.
NORTH HOLLYWOOD, CA. 91605

A photo report on the GGLS FALL

by HARRY L. DIXON
West Coast Secretary, BLS



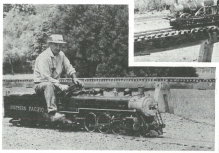
All the way from Colorado Springs came J. B. Squires with his ¾" scale 4–6–6–4 to help handle the tonnage at the Golden Gate Live Steamers' Fall Meet.



A Junior Member of the GGLS, Jerry Hanford of Lafayette, California, gets steam up on Bill Bower's 1½" 4–6–0.

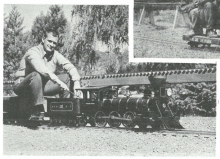
With his brand-new Winton Mogul, Terry Taylor of Castro Valley, California, was on hand to help the NMRA boys remember the real sounds of steam.

A beautiful 1" scale Lion built by Vic Shattock of El Cerrito pulls its builder and brakeman Roy Anderson of San Francisco around the GGLS track at Redwood Park in Oakland.



Typical of modern passenger motive power in the 1920's is Louis Romani's 1½" Southern Pacific 4–6–2 from Campbell, California.

With one of the Bowlus Diesels now handled by his firm, Winton Brown (GGLS President) takes a couple of passengers around the track.



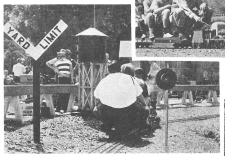
Donald Bauer, Associate Member from Deerfield, Illinois, takes a turn at running Bill Bower's 4–6–0 around the GGLS track while attending the Fall Meet.

MEET 1968

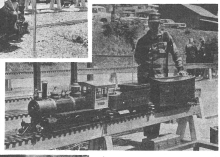
For a while it looked as though everyone but Bill Brower would get a chance to run his engine but before the day was over he, too, had a chance to pull the throttle!

Dr. Lewis Guy of Tulare, California poses with his granddaughter and his 1½" Little Engines Early American on the steaming tracks at the Golden Gate Live Steamers' facilities.

Behind Marvin Weber and his vertical-boilered Climax is George Broad with his Lion double-heading a pair of Live Steam old timers from the very first days of steam.



Although the Fall Meet date was arranged to correspond with the NMRA National Convention, few of the conventioneers visited the track. What they lacked in numerical quantity, though, they made up for in volumetrical quantity!



1½NG 2-8-0 by Barney Emerson of Concord, California, runs on 4¾" gauge track. His equipment carries the road name of "Destitute & Western" and the sway-back box car graphically adds, "You better believe it!"

A vertical-boilered Climax on the 7½" track is also the work of Marvin Weber of Cupertino, California. This small engine is a real work-horse.

Louis Bradas of El Sobronte, California, works out his 1½" Little Engines Early American . . . and finds a ready flagman in his young son.

...from the cupola

WHERE'S THE DIRECTORY???

According to the amount of mail we receive containing that question it must be about the most repeated phrase in Live Steam circles. It was advertised to be distributed by the end of April (has anyone checked to see if the ad specified which year?) but in spite of everything we do to try to get it completed and to the mail it is still not ready.

We've tried to keep you posted through this column and in the July issue went into some detail on the reason for its delay, but the letters still keep coming and asking the same question: *"Where's the Directory?"*

No, we didn't give any further information on *when* it would be published . . . who would at this point? We are probably more frustrated here than any ten of you who are waiting about the fact that it is not out . . . or wasn't out last summer when we all wanted it. Every time we have to walk around that stack of 24 cartons of paper in the middle of the floor, we fight the unkind thoughts that cross out mind about the circumstances that keep the boxes in that pile.

So where *is* the project right now? Well, the paper and binding supplies are in our office. They had been delivered to the printer last June 6th when he had agreed to print it for us. He never got around to it so we hauled it back here about a month ago.

Twenty-three of the plates which were made for the printing of the Directory are here, too, but there's no point in running them until the rest are ready . . . we'd just have more stacks of paper to keep track of.

The type is all here and ready for the advertising section as well as the Club Directory section and we have completed the drawing work on 12 of the 16 maps showing location of club facilities. As soon as the other 4 maps are finished the plates can be made and we can do the printing, *but . . .*

We're two months behind schedule on LIVE STEAM, thanks to our "helpful" printer friend. Several have suggested that we turn out a combined issue as we did once before in order to get caught up and, you know, we really appreciate those expressions of genuine, sincere concern and help that so many have offered. With our Second Class mailing permit, though, that isn't possible . . . it requires that there be twelve issues a year.

So what's the schedule? With this article we will have completed all copy for this November issue and it will be on its way to the typesetters. While that's being done we will do the illustrations for Bill Morewood's and Joe Nelson's articles. With a little luck we will be able to print it the weekend of December 7th and 8th. Then, if we wait to do our Christmas shopping on December 24th (as we usually do anyway!) we hope to get the December issue ready to mail right after Christmas. Perhaps that would be the time to finish off those maps and get the printing done. It would cut into our attempt to catch up on LIVE STEAM, but the Directory schedule is in even worse shape!

But let there be no misunderstanding . . . this is *not* a promise. It's the way things stand right now and we hope, as we have in the past, to be able to produce on that schedule. Those of you who have ordered your copy have been most patient. Many have written to inquire and we can fully understand your concern and disappointment. One thing we have learned from this is not to sell something you don't yet have available! We won't get caught in that bind again.

All through the past few months, though, it might have been very easy to become discouraged if it had not been for the wonderful acceptance of LIVE STEAM Magazine. We never suspected that a single ad in Model Railroader and one in Model Engineer would bring a 50% increase in our subscription list! We weren't prepared to cope with this response but we are digging our way out and fully expect to become master of this situation one of these days. The wonderful letters from new subscribers as well as from those who have been with us these past couple of years made it very easy to look beyond the problems of this day and to keep exploring the future. We won't get this licked today, we know . . . or this month for that matter, but we're going to keep slugging.

But now, before we run completely out of space, we want to take a couple of lines to extend from our house to your house the most sincere hope that the real meaning of Christmas will guide you through a happy and prosperous New Year!

–W. C. F. –

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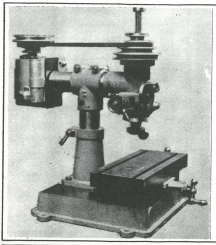

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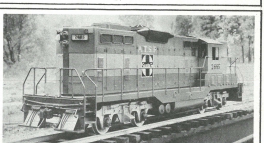

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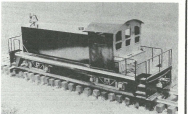

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